IN THE CLAIMS:

Please cancel claims 2, 7 and 9 and amend the remaining claims as follows:

1.   (Currently Amended) A method for indexing a plurality of images in a database, each image in said database having within it an object of the same type, comprising the steps of:

digitizing each of said plurality of images in said database into an array of descriptors;

separating said descriptors into a plurality of index groups:

calculating for at least one of said plurality of images in said database an index value corresponding to one of said index groups:

providing a first index level, a second index level, and a pre-set number:

wherein said first index level has a first index value, said second index level has a second index value, said first index level having a first list of buckets, said second index level having a second list of buckets, and said buckets each having a counter;

if said counter of a bucket in said first index level is larger than said pre-set number, then said bucket in said first index level has a second index level, and said counter is the sum of counters of said buckets in said second index level:

if said counter of said bucket in said first index level is less than or equal to said pre-set number, then said bucket in said first index level has a list of image templates, and the number of said image templates is said counter;

wherein each said image template comprises a plurality of said descriptors.

2.   Canceled.

3.   (Original) A method for indexing a plurality of images in a database according to claim 0 wherein said index value is a function of at least two of said descriptors.

4.   (Original) A method for indexing a plurality of images in a database according to claim 0 wherein said function comprises averaging at least two of said descriptors.

2

5.   (Original) A method for indexing a plurality of images in a database according to claim 0 wherein said function comprises averaging four of said descriptors.

6.   (Original) A method in accordance with claim 0, wherein said object type comprises a human face.

7.   (Canceled.)

8.   (Currently Amended) A method for image indexing comprising:

digitizing a target image having an object within it into an array of descriptors;

digitizing at least one source image in a database into an array of descriptors, each said source imaging having an object within it and said object in said ~~first~~ target image and said object in said at least one source image being of same type;

wherein said array of descriptors from said ~~first~~ target image and said array of descriptors from said at least one source image comprise the same type and the same number of descriptors; and

separating said descriptors into index groups, wherein said index groups each have an index value;

providing a first index level, a second index level, and a pre-set number;

wherein said first index level has a first index value, said second index level has a second index value, said first index level having a first list of buckets, said second index level having a second list of buckets, and said buckets each having a counter;

if said counter of a bucket in said first index level is larger than said pre-set number, then said bucket in said first index level has a second index level, and said counter is the sum of counters of said buckets in said second index level;

if said counter of said bucket in said first index level is less than or equal to said pre-set number, then said bucket in said first index level has a list of image templates, and the number of said image templates is said counter;

3

wherein each said image template comprises a plurality of said descriptors.

9.   (Canceled.)

10.   (Currently Amended) A method in accordance with claim 8 9, wherein said object type comprises a human face.

11.   (Currently Amended) A method according to claim 8 9, wherein said index value of each index group is the average value of said descriptors in said index group.

12.   (Currently Amended) A method according to claim 8 9, wherein each said index group comprises a consecutive number Y of said descriptors.

13.   (Currently Amended) A method according to claim 0, further comprising the step of selecting Y.

14.   (Currently Amended) A method according to claim 8 9, wherein said index group comprises every other Z descriptors, wherein Z is an integer.

15.   (Currently Amended) A method according to claim 0, further comprising the step of selecting Z.

16.   (Currently Amended) A method of image indexing for an image database having a plurality of image templates generated from a plurality of source images, comprising:

providing a first index level, a second index level hierarchical multiple index levels, and a pre-set number;

providing a image database having a source image;

wherein said first index level has an index value, said second index level has an index value, said first index level having a list of buckets, said second index level having a list of buckets, and said buckets each having a counter;

wherein each said index level has a list of buckets, said buckets each having an index value and each having a counter;

4

if said a counter of said a bucket in a said first index level in said multiple index

levels is larger than said pre-set number, then said bucket in said first index level has a

second index level, and said counter of said bucket in said first index level is the sum of

counters of said buckets in said second index level;

if said counter of said bucket in said first index level in said multiple index levels is

less than or equal to said pre-set number, then said bucket in said first index level has a list

portion of said plurality of image templates, and the number of said image templates is the

said counter of said bucket; said portion of said plurality of image templates each having an

index value matching to said index value of said bucket.

wherein said image template comprising said digitized descriptors of said source

image according to claim 1.

17.   (Currently Amended) A method according to claim 16, wherein each of said

first multiple index levels comprises a hash table, and comprising using said index value as a

hash value.

18.   (Currently Amended) A method according to claim 1 16, wherein said second

index level comprises a hash table, and comprising using said index value as a hash value.

19.   (Currently Amended) A method of finding top matches from an image

database having source images, given a target image, and using image indexing architecture

with a one-by-one matching algorithm, a pre-set number as an upper limit of a final fine

group, and a pre-set percentage threshold for similarity matching for said matching

algorithm, said finding process method comprising:

setting a pre-set number as an upper limit for the number of final one-to-one matching

groups of templates for final fine-matching using said one-by-one matching algorithm;

providing constructing said an image indexing architecture according to claim8, said

constructing step comprising:

5

providing hierarchical multiple index levels, and a pre-set number;

wherein each said index level has a list of buckets, said buckets each having

an index value and each having a counter;

if a counter of a bucket in a first index level in said multiple index levels is

larger than said pre-set number, then said bucket in said first index level has a second index

level, and said counter of said bucket in said first index level is the sum of counters of said

buckets in said second index level;

if said counter of said bucket in said first index level in said multiple index

levels is less than or equal to said pre-set number, then said bucket in said first index level

has a portion of said plurality of image templates, and the number of said image templates is

the said counter of said bucket; said portion of said plurality of image templates each having

an index value matching to said index value of said bucket;

digitizing said target image into ~~an~~ a target image template ~~of an array of descriptors~~;

calculating a group of index values ~~groups~~ of said target image template;

using ~~use~~ said group of ~~first~~ index values of said target image template to create a

final one-by-one matching group of image templates from ~~index into said first index level of~~

said image indexing architecture for final fine-matching, comprising the steps of:

using a first index value from said group of index values of said target image

template to index into one index level of said hierarchical multiple index levels in said image

index architecture; using said first index of said target image template to index into said first

index level of said image indexing architecture:

if a ~~the~~ counter of a ~~said~~ bucket ~~first index~~ of said a first index level is larger

than or equal to said pre-set number, then using ~~said second~~ a next index of said target image

template to index into a next ~~said second~~ index level of said image indexing architecture until

6

a bucket having a counter less than said pre-set value is found or a bucket having a last index level is reached:

if a last index level is reached, image templates contained under said bucket having said last index level from said final one-by-one matching group; and

if the counter of a bucket of an ~~said first index of said first~~ index level is less than said pre-set number, then picking said bucket and neighboring buckets ~~of said first index~~ in said first index level until the sum of the counters of said neighboring buckets ~~of said first index~~ is larger than or equal to said pre-set number; and all portions of image templates contained under said neighboring buckets from said final one-by-one matching group;

~~picking the image templates from said neighbor buckets of said first index as final one-by-one matching group;~~

thereafter applying said one-by-one matching algorithm to said target image and each of said source images templates of said ~~picked~~ final one-by-one matching group; wherein source image templates having the highest matching scores from said final one-by-one matching group against the target image template with said matching scores over said pre-set percentage threshold become said top matches.

20.   (Original) A method according to claim 0, wherein said matching algorithm provides a list of matches with higher than said pre-set percentage threshold, or gives no match if there are no matches with higher than said pre-set percentage threshold.